



Some lessons learned from the effects of hurricane Georges in the Dominican Republic

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MAPFRE RE has always been characterised by its emphasis on service, both towards its clients and towards society as a whole. Following on from this principle, confronted by the impact of Hurricane Georges in the Dominican Republic, and after expressing MAPFRE RE's complete readiness to meet its responsibilities as a reinsurer, it was decided to carry out an on the spot analysis of the event, its evolution and its consequences from a technical and insurance point of view.

The purpose of the visit was to collect information on the damage which had been caused in the country in order to be able to draw technical and insurance conclusions. The ultimate aim would be to improve technical criteria in order to be better equipped, from an insurance and social point of view, to deal with natural phenomena such as Hurricane **Georges**.

This article will give some relevant data and initial conclusions; showing this experience to have been very positive. At the time of writing, the information which was collected is continuing to be analysed, and more information on

the event is still awaited from the Dominican market, without whose valuable collaboration this study would not be possible.

SPECIFIC DATA ON HURRICANE GEORGES ON ITS JOURNEY THROUGH THE DOMINICAN REPUBLIC

Already situated on the Canal de la Mona after crossing the island of Puerto Rico on 21 September 1998, as a category 2 hurricane, it was forecast to move towards the northern coast of the Dominican Republic.

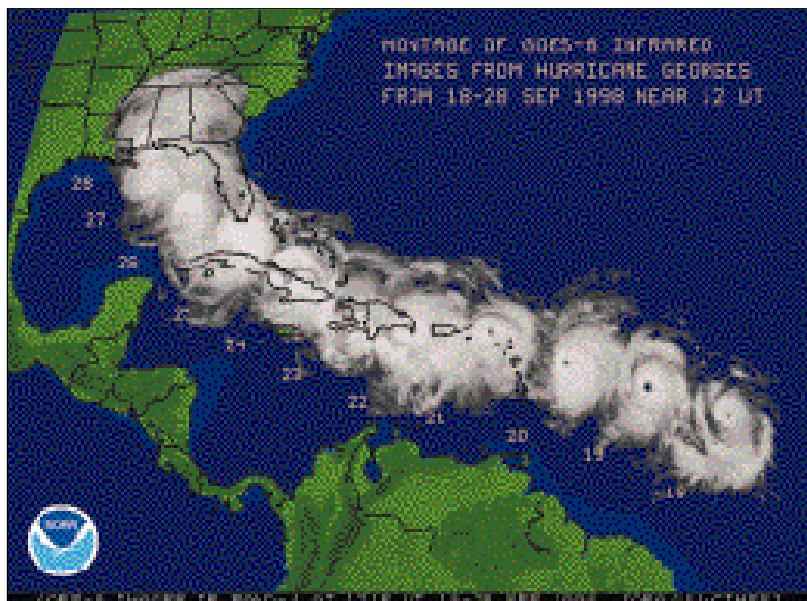
Despite the predictions, it veered to the south-east and its eye crossed the Dominican Republic from its most eastern southern extreme, coming in from the island of Saona and the Parque Nacional del Este. This circumstance was decisive in avoiding that the storm surge would not penetrate the southern coasts of the island. Again over the sea, across from San Pedro de Macoris and La Romana, it temporarily increased to a category 3 hurricane with winds of 190 km/h in the after-

noon of the 22nd. The eye travelled over approximately 350 kilometres of the country in some 12 hours. In contrast to what happened in Puerto Rico, **Georges** left the country for Haiti as a category 1 hurricane. The central ridge of mountains to the north-east of the country reduced the intensity of **Georges** and altered its course by channelling it through the San Juan valley.

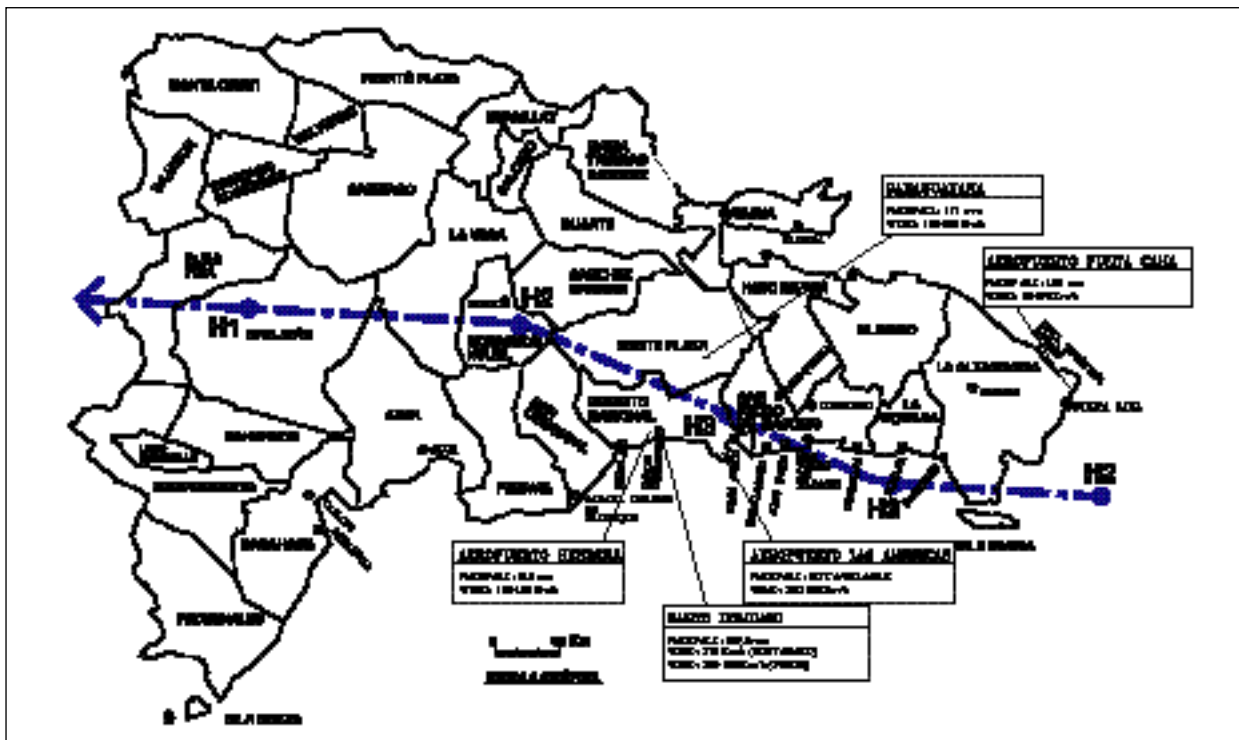
TECHNICAL ASPECTS

Some of the main technical aspects collected from the fieldwork are given below:

- The assets which suffered the most generalised damage were secondary elements of considerable height, such as traffic lights, electricity distribution towers, advertising hoardings, posts, fences, antennas and awnings. In many cases these elements produced additional damage by collapsing onto adjoining property (fences, motor vehicles, housing, etc.), which gave rise to third party liability claims.
- It has been seen that adequate self-protection against the hurricane



Montage of GOES 8 images of Hurricane **Georges** from 18 to 28 September 1998. National Oceanic and Atmospheric Administration (NOAA).



Track of the eye of **Georges** and meteorological information available from the observation stations of the Servicio Meteorológico Nacional.

in those buildings located in areas where the hurricane was not of extreme intensity was successful at reducing hurricane damage. This was not however a generalised situation, perhaps due to the contradictory meteorological information given previous to the event.

- The following have been shown to be risks with a high level of exposure due to the serious damage which was suffered:

- **Poultry farms.** Very light construction and located in open areas. The percentages of damage actually caused over the sum insured (hereafter referred to as PML¹) reached 80 to 100%.

- **Sugar-works (ingenios).** Tall elements with a light construction normally in open areas (sugar cane plantations). The PML was in the order of 30%.

- **Holiday homes and villas.** These are constructed in elevate building densities with elevate economic values, this is aggravated by the vulnerability of their frail roofing. The PML was 30 to 50%.

- **Industry.** Its intrinsic vulnerability was increased if buildings

were located outside industrial complexes or on their fringes. In these cases the PML could increase to 25 to 30%.

- **Sports complexes.** In the majority of cases there was considerable damage, caused due to the structure of the installations themselves: normally not compartmentalised and of great volume, with annexed elements of relatively large height and necessarily located in open areas.

CONCLUSIONS

Losses of US \$380 million are expected for the insurance sector in the Dominican Republic. The PML is estimated at 3.5%.

The visit, which was made in order to experience the effects of Hurricane **Georges** in the Dominican Republic, has shown that considerable damage can result from the failure of small structural elements (e.g. anchoring points in roofs). In addition to this, age and state of conservation have been confirmed

as factors which alter the resistance of those structural elements. It is also important to note that adequate self protections reduce the destructive effects of hurricanes on structural elements.

Although it was not exceptionally intense, Hurricane **Georges** affected a vast number of countries with considerable tenacity and strength, due principally to the fact that it was able to regenerate itself in favourable oceanic and atmospheric conditions which allowed it to survive and recover after crossing significant expanses of land.

Events such as hurricane **Georges** demonstrate that catastrophe prices should not solely be left to the fluctuations of the world market nor exclusively determined by the domestic sector. The Caribbean area, per se, has historically exhibited hazard levels which are aggravated by human pressure on the environment, risk levels are therefore reached whose prices must, at the very least, be constant, and it would also be desirable if the prices were tailored to the area's ever growing vulnerability. ■

¹ Abbreviation of the term probable maximum loss. Although this expression is used prior to the actual occurrence of the accident, in the insurance jargon it is used semantically incorrectly to contemplate the analysis of damage incurred as a result of the accident actually having happened. Thusly taking into account this irregularity, from here on we will refer to the percentage of damage in relation to the insured sums as PML.